TNA000067

TENNESSEE DEPARTMENT OF AGRICULTURE
Water Resources Program

March 16, 2011

Ms. Erin O'Brien
TDEC
L&C Annex, 6th Floor
Nashville, Tennessee 37243

Dear Ms. O'Brien:

I am writing to inform you that I have reviewed the application and Comprehensive Nutrient Management Plan (CNMP) for CAFO permit for Mr. Dennis Hedgecoth in Deerlodge, Tennessee (previous NPDES Permit NO. TNA000067).

This letter is to confirm that the TDA has reviewed and approved the CNMP. I have enclosed a copy of the Nutrient Management Plan Requirements form and the original signed and dated Notice of Intent (NOI) form, Addendum to Nutrient Management Plan, Closure Plan, CNMP, and stamped Approval Stamp form for your review and final approval.

Sincerely,

Angela L. Warden
CAFO Specialist

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Pollution Control

: //enclosures

ec:// Mr. John Donaldson, Technical Service Provider for Mr. Dennis Hedgecoth

Ellington Agricultural Center
440 Hogan Road
Nashville, TN 37220
Telephone: 615-837-5492 Fax: 615-837-5025

TENNESSEE DEPARTMENT OF AGRICULTURE

Water Resources Program

The following individual has submitted all required elements of an **individual NPDES permit** for a **Class I CAFO**. Their Nutrient Management Plan (or CNMP) has been reviewed and approved by this office.

Name of Owner/Operator: Dennis Hedgecoth

Operation Name: Dennis Hedgecoth

Address of Operation: 1610 Lloyd Hall Loop Deerlodge, TN 37726

Phone Number: (931) 863-3646 County: Fentress

Date application was initiated:

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NOV 08 2010

Date approval forwarded to TDEC:

MAR 16 2011

NMP/CNMP Approval Date:

THE APPROVAL SHALL NOT BE CONSTRUED AS CREATING A PRESUMPTION OF CORRECT

MAR 16 2011

OPERATION OR AS WARRANTING THAT THE APPROVED FACILITIES WILL REACH THE DESIGNED GOALS

Date approval received by TDEC

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TDA Reviewer's Name: Angela Warden

TDA Reviewer's Signature: Angela Warden 3/16/11
Date

Jennis Hedgcoth

Deer lodge, TN

Fentress Co. T.

Nutrient Management Plan Requirements

#52

The following 9 items need to be submitted at the time the permit is applied for. Additional record-keeping items as outlined in the CAFO rules are also considered part of the nutrient management plan and must be kept on-site. More information on each item can be found in the CAFO rule (1200-4-5-.14).

Rec'd 11/9/10

☑ 1. **Two maps: (1.)** A map of your farm showing location of any animal barns/houses, compost bins, litter storage bins, manure lagoons/holding ponds, nearby roads, fields to which litter/manure will be applied, and non-application buffer areas around any bodies of water (streams, creeks, rivers, ponds, wells, sinkholes, springs, wetlands, etc.). A hand-drawn map is acceptable and even preferred. **(2.)** A topographic map of the farm (1:24000 scale, showing 1-mile radius from farm) showing property lines.

☐ 2. **Nutrient budget** – this is basically a balance sheet of all manure produced on the farm and all manure spread on the farm or removed from the farm. Application rates for all fields should be based on crop needs, realistic crop yield expectations, and actual manure analyses of nutrient content.

☑ 3. **Soil test results** for phosphorus and potassium for each application field. These must be taken at a minimum of every five years.

☑ 4. Results of **manure analysis** from within the past year. Annual manure testing is a requirement for all CAFOs. These results must be included with initial permit application if the farm is in operation. If the farm that is applying for the permit is new and not yet operating, then manure testing results need to be obtained once operation begins. At that point, the manure test results and revised application rates need to be submitted to TDA. Manure test results in subsequent years need to be kept as part of your record-keeping activities.

☐ 5. Results of the **Phosphorus Index** applied to each field that has a soil test P value of "High" or "Very High". In those situations, this tool will determine whether your application rates will be based on nitrogen or phosphorus.

☑ 6. Statement regarding method of **dead animal disposal**.

Rec'd 11/9/10

☑ 7. **Closure Plan** to be implemented in the event animal production ceases on the site.

These last two items are only required for medium-size CAFOs that manage **liquid manure**.

NA 8. Documentation of **design of liquid waste handling system**. This should include, but is not limited to: volume for solids accumulation, design treatment volume, total design volume, the approximate number of days of storage capacity, pumping and routing of wastes, and any solid separation process. Ideally, this documentation would consist of the pertinent engineering drawings with accompanying descriptive narrative.

NA 9. The construction, modification, repair, or installation of any portion of a CAFO liquid waste handling system (such as earthen holding pond, treatment lagoon, pit, sump or other earthen storage/containment structure) after April 13, 2006 must be preceded by a thorough **subsurface investigation**. This investigation will include a detailed soils investigation with special attention to the water table depth and seepage potential.

In addition to the items above, the following form(s) must accompany your application:

Rec'd 11/9/10

☑ ***Notice of Intent* form** must be submitted with all applications from Class II (Medium) CAFOs

OR

NA **EPA Forms 1 and 2B** must be submitted with all applications from Class I (Large) CAFOs.

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☑ **Addendum to Nutrient Management Plan**.

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Tennessee Department of Environment and Conservation,
Division of Water Pollution Control
401 Church Street, 6th Floor L & C Annex, Nashville, TN 37243
(615) 532-0625

CONCENTRATED ANIMAL FEEDING OPERATION (CAFO)
STATE OPERATING PERMIT (SOP)
NOTICE OF INTENT (NOI)

I think

Type of permit you are requesting: ☐ SOPCD0000 (designed to discharge) ☒ SOPC00000 (no discharge) ☐ Unknown, please advise

Application type: ☐ New Permit ☒ Permit Reissuance ☐ Permit Modification

If this NOI is submitted for Permit Modification or Reissuance provide the existing permit tracking number: ____

OPERATION IDENTIFICATION

Operation Name: Dennis Hedgecoth	County: FENTRESS
Operation Location/ Physical Address: 1610 Lloyd Hall Loop Deerlodge, TN 37726	Latitude:
	Longitude:

Name and distance to nearest receiving water(s): Big Branch 1400'

If any other State or Federal Water/Wastewater Permits have been obtained for this site, list those permit numbers:

Animal Type: ☒ Poultry ☐ Swine ☐ Dairy ☐ Beef ☐ Other ____

Number of Animals: 72,500 Number of Barns: 3 Name of Integrator: Koch

Type of Animal Waste Management: (check all that apply)
☒ Dry
☐ Liquid
☐ Liquid, Closed System (i.e. covered tank, under barn pit, etc.)

Attach the NMP ☐ NMP Attached | Attach the closure plan ☒ Closure Plan Attached | Attach a topographic map ☒ Map Attached

PERMITTEE IDENTIFICATION

Official Contact (applicant): Dennis Hedgecoth	Title or Position: OWNER			☐ Correspondence
Mailing Address: 1610 Lloyd Hall Loop	City: Deerlodge	State: TN	Zip: 37726	☐ Invoice
Phone number(s): 931-863-3646	E-mail:			
Optional Contact:	Title or Position:			☐ Correspondence
Address:	City:	State:	Zip:	☐ Invoice
Phone number(s):	E-mail:			

APPLICATION CERTIFICATION AND SIGNATURE (must be signed in accordance with the requirements of Rule 1200-4-5-.05)

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name and title; print or type	Signature	Date
Dennis Hedgecoth, OWNER		4/5/10

STATE USE ONLY

Received Date: RECEIVED MAR 21 2011	Reviewer	EFO	T & E Aquatic Fauna	Tracking No.
	Impaired Receiving Stream	High Quality Water		NOC Date

Addendum to Nutrient Management Plan:

By my signature below, I affirm that I have read, understand, and will comply with the following stipulations from Tennessee's CAFO rule (1200-4-5-.14) that apply to my CAFO operation.

1) All clean water (including rainfall) is diverted, as appropriate, from the production area.
2) All animals in confinement are prevented from coming in direct contact with waters of the state.
3) All chemicals and other contaminants handled on-site are not disposed of in any manure, litter, process wastewater, or storm water storage or treatment system unless specifically designed to treat such chemicals and other contaminants.
4) All sampling of soil and manure/litter is conducted according to protocols developed by UT Extension.
5) All records outlined in 1200-4-5-.14(16)d-f will be maintained and available on-site.
6) Any confinement buildings, waste/wastewater handling or treatment systems, lagoons, holding ponds, and any other agricultural waste containment/treatment structures constructed after April 13, 2006 are or will be located in accordance with NRCS Conservation Practice Standard 313.
7) Drystacks of manure or stockpiles of litter are always kept covered under roof or tarps.
8) An *Annual Report* will be written for my operation and submitted between January 1 and February 15 of each year. It will include all information required by rule [1200-4-5-.14(16)g].

Signature of CAFO Operator: _____ Date: 11/5/10

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Closure Plan

In the event that broiler production at this location ceases, the following will be done within 360 days:

- Any litter/compost currently in storage at the time of closure will be removed and spread on the farm or spread elsewhere according to my Nutrient Management Plan.
- All litter in houses will be removed and spread on the farm or spread elsewhere according to my Nutrient Management Plan.
- All land application of litter will be done at application rates calculated in the Nutrient Management Plan.
- The most current litter analysis will be provided to anyone removing litter from the farm.
- Any dead birds in the houses at the time of closure will be composted.

Date: 11/5/10

Conservation Plan Map

Customer(s): DENNIS L HEDGECOTH
District: FENTRESS COUNTY SOIL CONSERVATION DISTRICT

Field Office: JAMESTOWN SERVICE CENTER
Agency: NRCS
Assisted By: W. Dwight Dickson

Legend

- Litter Storage
- Practices (polygons)
- Farm Boundary
- soilmu_a_tn607
- practice_instance_point
- practice_instance_polyline
- practice_instance_polygon
- land_unit

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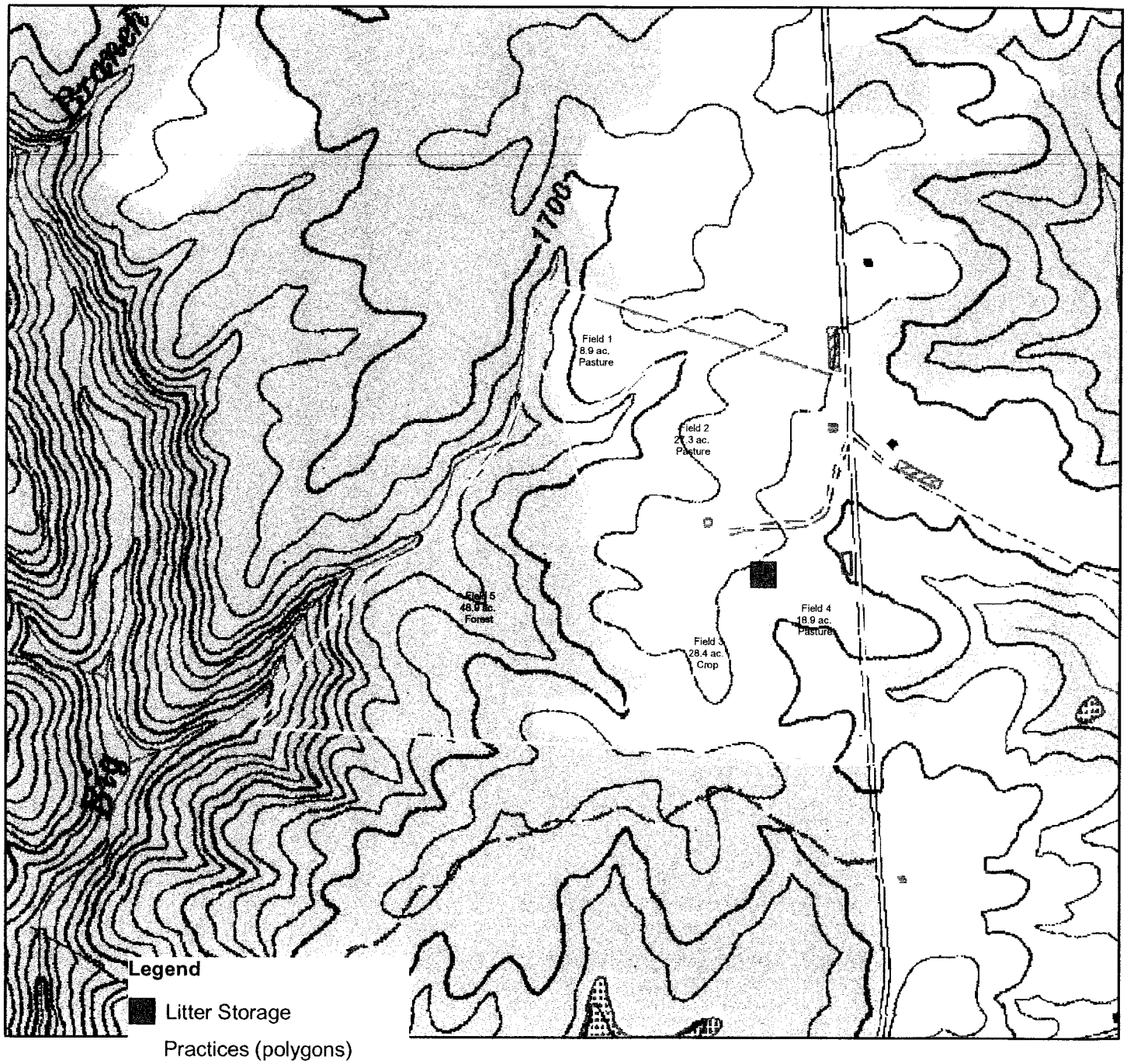
470 0 470 940 1,410 1,880
Feet

N

Conservation Plan Map

Customer(s): DENNIS L HEDGECOTH
District: FENTRESS COUNTY SOIL CONSERVATION DISTRICT

Field Office: JAMESTOWN SERVICE CENTER
Agency: NRCS
Assisted By: W. Dwight Dickson



Legend

- Litter Storage
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- soilmu_a_tn607
- practice_instance_point
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- practice_instance_polygon
- land_unit

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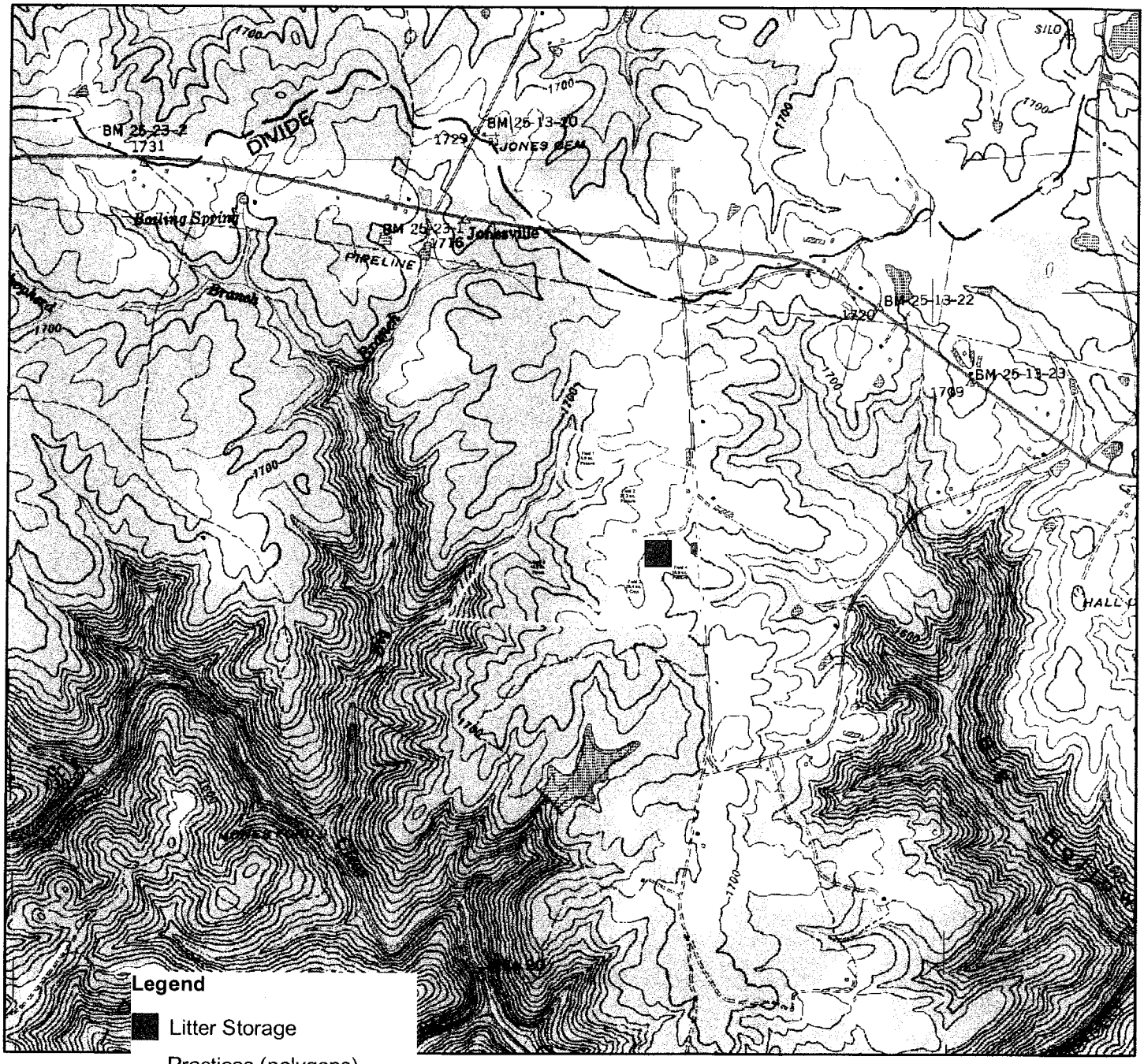
475 0 475 950 1,425 1,900 Feet

N

Conservation Plan Map

Customer(s): DENNIS L HEDGECOTH
District: FENTRESS COUNTY SOIL CONSERVATION DISTRICT

Field Office: JAMESTOWN SERVICE CENTER
Agency: NRCS
Assisted By: W. Dwight Dickson



Legend

- Litter Storage
- Practices (polygons)
- Farm Boundary
- soilmu_a_tn607
- practice_instance_point
- practice_instance_polyline
- practice_instance_polygon
- land_unit

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1,100 0 1,100 2,200 3,300 4,400
Feet

N

Nutrient Management Plan

UPDATE

For:

Dennis Hedgecoth

Deerlodge, TN

June 2010

Prepared by:

Validus

WARRANTY DISCLAIMER:

This CNMP was prepared using the USDA NRCS MMP software. Validus does not make, and hereby disclaims, all representations and warranties of every kind or nature, express or implied (by operation of law or otherwise), including fitness for a particular use or purpose, concerning the MMP Software and this CNMP prepared therewith or therefrom.

Nutrient Management Plan
UPDATE

The Nutrient Management Plan (NMP) is an important part of the conservation management system (CMS) for your Animal Feeding Operation (AFO). This NMP documents the planning decisions and operation and maintenance for the animal feeding operation. It includes background information and provides guidance, reference information and Web-based sites where up-to-date information can be obtained. Refer to the Producer Activity document for information about day-to-day management activities and recordkeeping. Both this document and the Producer Activity document shall remain in the possession of the producer/landowner.

Farm contact information: Dennis Hedgecoth
c/o
1610 Loyd Hall Loop
Deerlodge, TN 37726
931-863-3646

Latitude/Longitude:

Plan Period: Apr 2010 - Mar 2013

Owner/Operator

As the owner/operator of this NMP, I, as the decision maker, have been involved in the planning process and agree that the items/practices listed in each element of the NMP are needed. I understand that I am responsible for keeping all the necessary records associated with the implementation of this NMP. It is my intention to implement/accomplish this NMP in a timely manner as described in the plan.

Signature: _____ Date: 6/30/10
Name:

Nutrient Management

The Nutrient Management component of this plan meets the Tennessee Nutrient Management 590 and Waste Utilization 633 Conservation Practice Standards.

Signature: _____ Date: 6/15/10
Name: John Donaldson
Title: Certification Credentials: TSP-03-1042

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Section 1. Background and Site Information

1.1. General Description of Operation

Dennis Hedgecoth has a combination poultry and beef cow family farm located in Fentress County, Tennessee. The operation consists of 60 cow/calf pairs and three (3) broiler houses. Broiler houses 1 contains 14,000 birds while houses 2 & 3 each contain 44,000 birds, for a total of 104,000 birds being on the farm at one time. Approximately 15 tons of cake is removed between each flock and stored in the dry stacks. Houses are totally cleaned once each year. Beef cows are on pasture year around.

1.2. Sampling, Calibration and Other Statements

Manure Sampling Frequency
Manure samples will be taken in the fall prior to spring application of manure.

Soil Testing Frequency
Soil tests will be renewed every three years with a composite sample from each field which is correlated to fields identified in this plan.

Equipment Calibration Method and Frequency
Application equipment will be calibrated and this calibration is documented annually.

Manure Applications
All poultry manure will be surface applied in the spring and fall at phosphorus crop removal rates.

3/16/11

Manure applications in this plan are based on ~~MWPS 2004 data~~ 2010 manure analysis A&L Laboratories. Manure analysis will be required annually after implementation of this plan and will follow the University of Tennessee Extension Service standard operating procedures for manure sampling.

Critical Use Areas
Vegetation establishment is required around the buildings and storage structures to reduce soil erosion, this offsite nutrient and pathogen transport.

All disturbed areas, including slopes of pads, will be planted to permanent vegetation. If construction is during seasons not suited for planting warm or cool season grasses, temporary vegetation will be established until permanent vegetation can be established. Refer to Application and Maintenance of Conservation Practices and specifically NRCS practice standard 342-Critical Area Treatment for guidance.

All conservation practices and management activities planned and implemented as part of this NMP should meet NRCS technical standards. For those elements, for which NRCS does not maintain technical standards, the criteria established by Land Grant Universities, industry, or other technically qualified entities will be met.

Veterinary Waste Management
All veterinary waste will be either disposed of through an approved land fill and sharps containers or by the attending veterinarian.

Revision Trigger
This nutrient management plan shall be reviewed when the results of soil tests are received to insure manure application rates are appropriate. This plan must be re-certified at least every five years. Updates of the NMP will require re-certification whenever there are substantial changes made to the animal numbers or permanent cropping system. Substantial changes are defined as a change of 25% or more in the number of animal units or acreage for land application from the original NMP, when the manure storage and land application method has changed, or when a different permanent cropping system has been adopted

CNMP Lifespan
This nutrient management plan shall be reviewed when the results of soil tests are received to insure manure application rates are appropriate. This plan must be re-certified at least every five years. Updates of this NMP will require re-certification whenever there are substantial changes made to the animal or crop operations. This plan will be amended when required by the permit.

Section 2. Manure and Wastewater Handling and Storage

This element addresses the components and activities, existing and planned, associated with the production facility, feedlot, manure and wastewater storage, treatment structures and areas, and any area used to facilitate transfer of manure and wastewater.

2.1. Manure Storage

Storage ID	Type of Storage	Pumpable or Spreadable Capacity	Annual Manure Collected	Maximum Days of Storage
House 1	In-house litter storage	180 Tons	90 Tons	730
House 2	In-house litter storage	350 Tons	281 Tons	455
House3	In-house litter storage	350 Tons	281 Tons	455
Dry Stack	Poultry manure dry stack	270 Tons	0 Tons	

2.2. Animal Inventory

Animal Group	Type or Production Phase	Number of Animals	Average Weight (Lbs)	Confinement Period	Manure Collected (%)	Storage Where Manure Will Be Stored
House 1	Broiler	14,000	2.2	Jan Early - Dec Late	100	House 1
House 2	Broiler	44,000	2.2	Jan Early - Dec Late	100	House 2
House 3	Broiler	44,000	2.2	Jan Early - Dec Late	100	House3

(1) Number of Animals is the average number of animals that are present in the production facility at any one time.
(2) If Manure Collected is less than 100%, this indicates that the animals spend a portion of the day outside of the production facility or that the production facility is unoccupied one or more times during the confinement period.

2.3. Normal Mortality Management

To decrease non-point source pollution of surface and ground water resources, reduce the impact of odors that result from improperly handled animal mortality, and decrease the likelihood of the spread of disease or other pathogens, approved handling and utilization methods shall be implemented in the handling of normal mortality losses. If on-farm storage or handling of animal mortality is done, NRCS Standard 316, Animal Mortality Facility, will be followed for proper management of dead animals.

Plan for Proper Management of Dead Animals

This operation will use composting as the primary mortality disposal method. All mortalities will be collected daily and composted.

For proper composting, correct proportions of carbon, nitrogen, moisture, and oxygen need to be present in the mix. Common carbon sources are sawdust or wheat straw. It is desirable because of its bulking ability, which allows entry of oxygen. Other carbon sources that could be used are peanut hulls, cottonseed hulls, sawdust, leaves, etc. If lab testing of the litter or experience indicates that the carbon/nitrogen ratio is adequate (20 - 35:1 ratio), then litter alone should be sufficient for composting mortality as long as desirable bulking ability is achieved and moisture is properly managed. Moisture management is critical and must be maintained between 40 and 55 percent (40% -does not leave your hand moist when squeezed, 55% - if more than two drops drip from your hand the material is too moist).

Recipe for composting broiler mortality

INGREDIENT	VOLUME	WEIGHTS
Straw	1.0	0.10
Carcasses	1.0	1.0
Litter	1.5	1.2
Water	0.5	0.75

Compost layering procedure

a. The first layer is one foot of litter.
b. A 4-6 inch layer of carbon amendment (sawdust is preferred) is added according to the recipe
c. A layer of carcasses is added. Carcasses shall be laid side-by-side and shall not be stacked on top of one another. Carcasses placed directly on dirt or concrete floors, or against bin walls will not compost properly.
d. Water is added (uniform spray).
e. Carcasses are covered with a 6-inch layer of litter.
f. Next layer of carcasses begun with carbon amendment and above steps repeated.
g. When composter is full, cap the 6-inch layer with four additional inches.

Maintain the moisture content at 40 to 55 percent during the composting process (40% - does not leave your hand moist when squeezed, 55% will allow about one drop of water to be released when squeezed, > 55% - if more than two drops drip from your hand the material is too moist, therefore add sawdust or dry carbon source).

Temperature is the primary indicator to determine if the composting process is working properly. A minimum temperature of 130 ° F shall be reached during the composting process. A temperature of 140 ° F is optimum; however, temperatures may range up to 160 ° F. If the minimum temperature is not reached, the resulting compost shall be incorporated immediately after land application or recomposted by turning and adding moisture as needed. Compost managed at the required temperatures will favor destruction of any pathogens and weed seeds.

Good carcass compost should heat up to the 140° range within a few days. Failure of the compost material to heat up properly normally results from two causes. First, the nitrogen source is inadequate (example wet or leached litter). A pound of commercial fertilizer spread over a carcass layer will usually solve this problem.

Secondly, the compost fails when too much water has been added and the compost pile becomes anaerobic. An anaerobic compost bin is characterized by temperatures less than 120°, offensive odors, and black oozing compound flowing from the bottom of the compost bin. In this case a drier bulking / carbon amendment should be added to dry the mix. Then, the material should be remixed and composted.

It is possible, though unlikely, for the temperature to rise above the normal range and create conditions suitable for spontaneous combustion. If temperature rises above 170° F, the material should be removed from the bin and cooled, spread on the ground to a depth not to exceed six inches in an area away from buildings. Water should be added only if flames occur. If temperature falls significantly during the composting period and odors develop, or if material does not reach operating temperature, investigate piles for moisture content, porosity, and thoroughness of mixing.

After this first stage process, the material should be turned into a second bin and allowed to go through a second heat process. For larger birds, especially turkeys, a third turning may be necessary for complete degradation of the birds. Typically, the process can be considered "done" within 21-28 days from the time the compost is filled for broilers. For turkeys, the process usually requires about 60 days. After the heat process, curing period of one to three months is usually required before the material is stable.

Compost may be land applied after the secondary or tertiary composting. If any animal parts are still in the mix, the material must be incorporated. If immediate application is not possible the material should be stored using the same requirements as that of stored litter in the Stacking Shed O&M statement.

Inspect compost structure at least twice annually when the structure is empty. Replace any broken or badly worn parts or hardware. Patch concrete floors and curbs as necessary to assure water tightness. Examine roof structures for structural integrity and leaks. Inspections shall be documented on the attached worksheet.

The primary and secondary composters and the litter storage area should be protected from outside sources of water such as rain or surface runoff.

In order to assure desired operation of the composting facility, daily records should be kept during the first several compost batches. This can be helpful in identifying certain problems that may occur.

2.4. Planned Manure Exports off the Farm

Month-Year	Manure Source	Amount	Receiving Operation	Location
Oct 2010	Dry Stack	104 Tons	External Operation	
Apr 2011	Dry Stack	494 Tons	External Operation	
Oct 2011	Dry Stack	124 Tons	External Operation	
Oct 2012	Dry Stack	126 Tons	External Operation	

2.5. Planned Manure Imports onto the Farm

Month-Year	Manure's Animal Type	Amount	Originating Operation	Location

(None)

2.6. Planned Internal Transfers of Manure

Month-Year	Manure Source	Amount	Manure Destination
Apr 2010	House 1	12 Tons	Dry Stack
Apr 2010	House 2	20 Tons	Dry Stack
Apr 2010	House3	20 Tons	Dry Stack
Jun 2010	House 1	12 Tons	Dry Stack
Jun 2010	House 2	20 Tons	Dry Stack
Jun 2010	House3	20 Tons	Dry Stack
Aug 2010	House 1	12 Tons	Dry Stack
Aug 2010	House 2	20 Tons	Dry Stack
Aug 2010	House3	20 Tons	Dry Stack
Oct 2010	House 1	12 Tons	Dry Stack
Oct 2010	House 2	20 Tons	Dry Stack
Oct 2010	House3	20 Tons	Dry Stack
Dec 2010	House 1	12 Tons	Dry Stack
Dec 2010	House 2	20 Tons	Dry Stack
Dec 2010	House3	20 Tons	Dry Stack
Feb 2011	House 1	12 Tons	Dry Stack
Feb 2011	House 2	20 Tons	Dry Stack
Feb 2011	House3	20 Tons	Dry Stack
Apr 2011	House 1	64 Tons	Dry Stack
Apr 2011	House 1	12 Tons	Dry Stack
Apr 2011	House 2	20 Tons	Dry Stack
Apr 2011	House 2	215 Tons	Dry Stack
Apr 2011	House3	215 Tons	Dry Stack
Apr 2011	House3	20 Tons	Dry Stack
Jun 2011	House 1	12 Tons	Dry Stack
Jun 2011	House 2	20 Tons	Dry Stack
Jun 2011	House3	20 Tons	Dry Stack
Aug 2011	House 1	12 Tons	Dry Stack

Month-Year	Manure Source	Amount	Manure Destination
Aug 2011	House 2	20 Tons	Dry Stack
Aug 2011	House3	20 Tons	Dry Stack
Oct 2011	House 1	12 Tons	Dry Stack
Oct 2011	House 2	20 Tons	Dry Stack
Oct 2011	House3	20 Tons	Dry Stack
Dec 2011	House 1	12 Tons	Dry Stack
Dec 2011	House 2	20 Tons	Dry Stack
Dec 2011	House3	20 Tons	Dry Stack
Feb 2012	House 1	12 Tons	Dry Stack
Feb 2012	House 2	20 Tons	Dry Stack
Feb 2012	House3	20 Tons	Dry Stack
Apr 2012	House 1	12 Tons	Dry Stack
Apr 2012	House 2	20 Tons	Dry Stack
Apr 2012	House3	20 Tons	Dry Stack
Jun 2012	House 1	12 Tons	Dry Stack
Jun 2012	House 2	20 Tons	Dry Stack
Jun 2012	House3	20 Tons	Dry Stack
Aug 2012	House 1	12 Tons	Dry Stack
Aug 2012	House 2	20 Tons	Dry Stack
Aug 2012	House3	20 Tons	Dry Stack
Oct 2012	House 1	12 Tons	Dry Stack
Oct 2012	House 2	20 Tons	Dry Stack
Oct 2012	House3	20 Tons	Dry Stack
Dec 2012	House 1	12 Tons	Dry Stack
Dec 2012	House 2	20 Tons	Dry Stack
Dec 2012	House3	20 Tons	Dry Stack
Feb 2013	House 1	12 Tons	Dry Stack
Feb 2013	House 2	20 Tons	Dry Stack
Feb 2013	House3	20 Tons	Dry Stack

Section 3. Farmstead Safety and Security

3.1. Emergency Response Plan

In Case of an Emergency Storage Facility Spill, Leak or Failure

Implement the following first containment steps:

a. Stop all other activities to address the spill.
b. Stop the flow. For example, use skid loader or tractor with blade to contain or divert spill or leak.
c. Call for help and excavator if needed.
d. Complete the clean-up and repair the necessary components.
e. Assess the extent of the emergency and request additional help if needed.

In Case of an Emergency Spill, Leak or Failure during Transport or Land Application

Implement the following first containment steps:

a. Stop all other activities to address the spill and stop the flow.
b. Call for help if needed.
c. If the spill posed a hazard to local traffic, call for local traffic control assistance and clear the road and roadside of spilled material.
d. Contain the spill or runoff from entering surface waters using straw bales, saw dust, soil or other appropriate materials.
e. If flow is coming from a tile, plug the tile with a tile plug immediately.
f. Assess the extent of the emergency and request additional help if needed.

Emergency Contacts

Department / Agency	Phone Number
Fire	911
Rescue services	911
State veterinarian	615-781-5310
Sheriff or local police	911

Nearest available excavation equipment/supplies for responding to emergency

Equipment Type	Contact Person	Phone Number
End loader and scraper	On farm	On Farm

Contacts to be made by the owner or operator within 24 hours

Organization	Phone Number
EPA Emergency Spill Hotline	1-888-891-8332
County Health Department	(931) 879-9936
Other State Emergency Agency	931-823-1465

Be prepared to provide the following information:

a. Your name and contact information.
b. Farm location (driving directions) and other pertinent information.
c. Description of emergency.
d. Estimate of the amounts, area covered, and distance traveled.
e. Whether manure has reached surface waters or major field drains.
f. Whether there is any obvious damage: employee injury, fish kill, or property damage.
g. Current status of containment efforts.

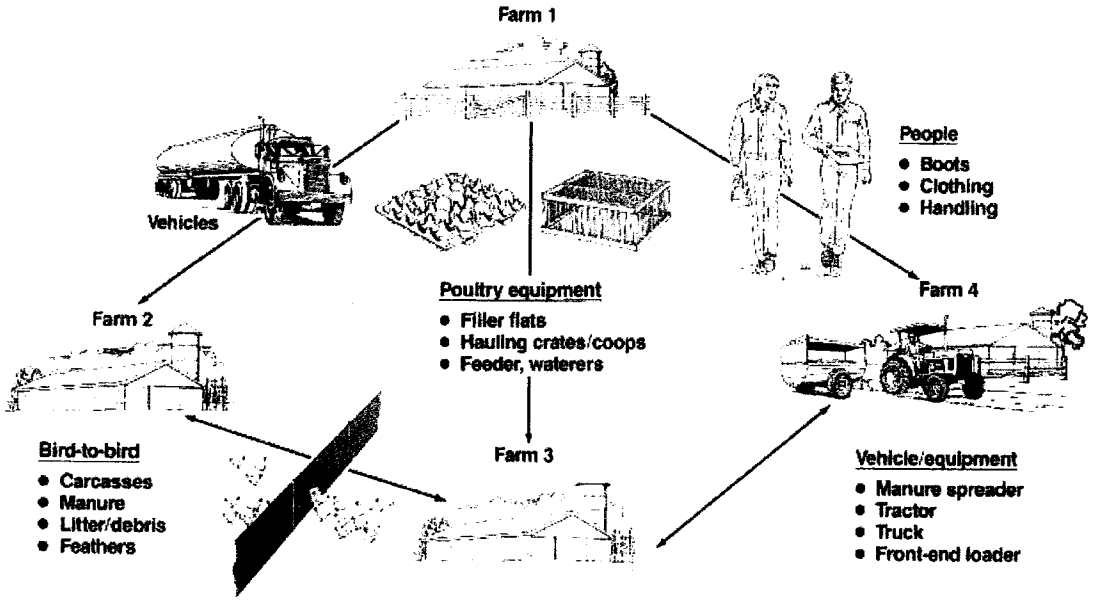
3.2. Biosecurity Measures

Biosecurity is critical to protecting livestock operations. Visitors must contact and check in with the producer before entering the operation or any production or storage facility.

Some examples of good bio-security practices include:

a. Permit only essential workers and vehicles on the premises.
b. Provide clean clothing and a disinfection procedure for employees and visitors. Know your visitor's travel history.
c. Report signs of disease to your veterinarian.

How Diseases Spread



Steps to Take to Avoid Disease Spread - Poultry

To reduce the risk of introducing disease into a flock, maintain a biosecurity barrier (physical barrier, personal hygiene, and equipment sanitation) between wildlife, poultry facilities, other commercial avian facilities, and pet birds. Some examples of good biosecurity practices include:

a. Permit only essential workers and vehicles on the premises.
b. Provide clean clothing and a disinfection procedure for employees and visitors. Know your visitor's travel history.
c. Clean and disinfect vehicles at the farm entrance.
d. Avoid visiting other avian facilities.
e. Do not keep pet birds.
f. Protect the flock from exposure to wild birds.
g. Control movement associated with the disposal of bird carcasses, litter, and manure.
h. Quarantine new additions to the flock. Never allow people or material to move from the quarantined birds to the flock.
i. Report signs of disease to your veterinarian.

3.3. Catastrophic Mortality Management

Refer to NRCS standards, or state guidance, regarding appropriate catastrophic animal mortality handling methods.

Plan for Catastrophic Animal Mortality Handling

Burial will be used to dispose of catastrophic mortalities. Contact the state veterinarian's office and the local TDEC office.

BURIAL-- Dig a large pit or trench as located on the plan map. Insert dead animals daily, and cover them with two feet of soil. The pit should be graded so that it does not impound water. Runoff from the pit should flow into a grass filter. Note: When adequate drainage is not provided, these pits or trenches fill with water and carcasses may actually float to the surface. The water in the pit is very bacteria-laden and may be a hazard to both animal and human health. There is also high potential for ground water contamination from both bacteria and nutrients. Burial trenches and pits must have at least a 2.0-foot separation between the bottom of the trench and groundwater. The pits should also have a berm to divert rainfall and runoff from the site. The soil should be able to infiltrate any rainfall that falls directly into the pit.

Vectors (dogs, rats, snakes, flies, etc.) are potential problems in a burial situation. Carcasses must be covered daily as to reduce vectors in and around the trench or pit.

When the burial pit is full, the site will be capped with a mound of soil so that precipitation is not allowed to collect in the closed pit. Also, the area will be grassed as to prevent erosion. The burial area will be monitored so that these conditions remain after settling of decomposing carcasses and capping material.

Important! In the event of catastrophic animal mortality, contact the following authority before beginning carcass disposal:

Authority name APHIS
Contact name Phillip Gordon
Phone number 615-781-5310

3.4. Chemical Handling

The indicated measures will be taken to prevent chemicals and other contaminants from contaminating process waste water or storm water storage and treatment systems.

	This is not a regulatory-agency permitted facility. This section does not apply.

	Measure
XX	All chemicals are stored in proper containers. Expired chemicals and empty containers are properly disposed of in accordance with state and federal regulations. Pesticides and associated refuse are disposed of in accordance with the FIFRA label.
	Chemical storage areas are self-contained with no drains or other pathways that will allow spilled chemicals to exit the storage area.
XX	Chemical storage areas are covered to prevent chemical contact with rain or snow.
XX	Emergency procedures and equipment are in place to contain and clean up chemical spills.
	Chemical handling and equipment wash areas are designed and constructed to prevent contamination of surface waters and waste water and storm water storage and treatment systems.
	All chemicals are custom applied and no chemicals are stored at the operation. Equipment wash areas are designed and constructed to prevent contamination of surface waters and waste water and storm water storage and treatment systems.

Section 4. Soil and Risk Assessment Analysis

4.1. Soil Information

Field	Map Unit	Soil Component Name	Surface Texture	Slope Range (%)	OM Range (%)	Bedrock Depth (in.)
1	LIC	Lily	L	3-8%	0.5-4%	36
2	LIC	Lily	L	3-8%	0.5-4%	36
3	LIC	Lily	L	3-8%	0.5-4%	36
4	LIC	Lily	L	3-8%	0.5-4%	36
5	LIC	Lily	L	3-8%	0.5-4%	36
6	LIC	Lily	L	3-8%	0.5-4%	36

4.2. Predicted Soil Erosion

Field	Predominant Soil Type	Slope (%)	Wind (Ton/Ac/Yr)	Irrigation (Ton/Ac/Yr)	Gully (Ton/Ac/Yr)	Ephemeral (Ton/Ac/Yr)	Plan Avg. Soil Loss (Ton/Ac/Yr)
1	LIC (Lily L)	7.0					3.1
2	LIC (Lily L)	7.0					1.9
3	LIC (Lily L)	7.0					1.7
4	LIC (Lily L)	7.0					2.9
5	LIC (Lily L)	7.0					2.9
6	LIC (Lily L)	7.0					2.9

Field	Crop Year	Starting Date (mm/dd/yyyy)	Ending Date (mm/dd/yyyy)	Soil Loss (Ton/Ac)	Primary Crop
1	2010	11/6/2009	11/5/2010	3.4	Fescue pasture maint
	2011	11/6/2010	11/5/2011	3.1	Fescue pasture maint
	2012	11/6/2011	11/5/2012	2.9	Fescue pasture maint
2	2010	7/2/2009	10/15/2010	2.4	Corn grain
	2011	10/16/2010	7/1/2011	0.6	Sm gr/ryegrass spring hay
	2012	7/2/2011	10/15/2012	2.6	Corn grain
3	2010	10/16/2009	7/1/2010	0.8	Sm gr/ryegrass spring hay
	2011	7/2/2010	10/15/2011	3.0	Corn grain
	2012	10/16/2011	7/1/2012	0.8	Sm gr/ryegrass spring hay
4	2010	11/6/2009	11/5/2010	3.0	Fescue pasture maint
	2011	11/6/2010	11/5/2011	2.8	Fescue pasture maint
	2012	11/6/2011	11/5/2012	2.9	Fescue pasture maint
5	2010	11/6/2009	11/5/2010	3.0	Fescue pasture maint
	2011	11/6/2010	11/5/2011	2.9	Fescue pasture maint
	2012	11/6/2011	11/5/2012	2.9	Fescue pasture maint
6	2010	11/6/2009	11/5/2010	3.2	Fescue pasture maint
	2011	11/6/2010	11/5/2011	3.0	Fescue pasture maint
	2012	11/6/2011	11/5/2012	2.8	Fescue pasture maint

4.3. Nitrogen and Phosphorus Risk Analysis

Risk Assessment for Potential Phosphorous Transport from Fields

The Phosphorus Index is a field-specific assessment tool used to provide a relative value of the field for potential phosphorus transport from the fields. Based on the soil test phosphorus level and the P Index value, nutrients should be land applied on a nitrogen-based, with an estimated 2P removal in harvested biomass, or P removal, or no P application. Any phosphorus application option, including a single application (banking), shall not exceed the recommended nitrogen application rate during the year of application, or not exceed the estimated nitrogen removal N harvested biomass.

Tennessee Phosphorus Index

Field	Crop Year	Site and Transport Factor	Mgmt. and Source Factor	P Index w/o P Apps	P Index w/ P Apps	P Loss Risk
1	2010	13	4	52	52	Low
1	2011	13	21	52	273	High
1	2012	13	21	52	273	High
2	2010	19	21	76	399	Very High
2	2011	19	21	76	399	Very High
2	2012	19	21	76	399	Very High
3	2010	19	4	76	76	Low
3	2011	19	21	76	399	Very High
3	2012	19	21	76	399	Very High
4	2010	13	21	52	273	High
4	2011	13	21	52	273	High
4	2012	13	21	52	273	High
5	2010	13	21	52	273	High
5	2011	13	21	52	273	High
5	2012	13	21	52	273	High
6	2010	13	16	52	208	High
6	2011	13	21	52	273	High
6	2012	13	21	52	273	High

4.4. Additional Field Data Required by Risk Assessment Procedure

Field	Distance to Water (Feet)	Slope Length (Feet)	Buffer Width (Feet)	Tillage/Cover Type
1	50	120	None	Pasture/Hay
2	600	120	None	No-till w/ light to medium residues
3	200	120	None	No-till w/ light to medium residues
4	50	120	None	Pasture/Hay
5	200	120	None	Pasture/Hay
6	50	120	None	Pasture/Hay

Section 5. Nutrient Management

The goal of this section is to develop a nutrient budget for nitrogen, phosphorus, and potassium that includes all nutrient sources. From this nutrient budget, projections will be made concerning the sustainability of the plan for the entire crop sequence. In most cases, the nutrient budget is accurate for the first year only. If nutrients from sources not included in this plan are used in the first year, the nutrient budget will be revised to account for those inputs. In subsequent years considered in this plan, a nutrient budget will be developed using current soil analysis data; current manure analysis data; the actual crops to be used and their projected yields and nutrient needs and will account for nutrients from all sources. Guidance in developing a nutrient budget may be obtained from your NRCS Field Office or your University of Tennessee Cooperative Extension Service Agent. Land application procedures must be planned and implemented in a way that minimizes potential adverse impacts to the environment and public health.

If land is included in the future for application that is not under the ownership/control of the producer, appropriate agreements will be obtained.

5.1. Field Information

Field ID	Sub-field ID	Total Acres	Spread-able Acres	FSA Farm	FSA Tract	FSA Field	County	Predominant Soil Type	Slope (%)
1		36.7	36.7				Fentress	LIC (Lily L)	7.0
2		27.2	27.2				Fentress	LIC (Lily L)	7.0
3		16.7	16.7				Fentress	LIC (Lily L)	7.0
4		46.7	46.7				Fentress	LIC (Lily L)	7.0
5		10.2	10.2				Fentress	LIC (Lily L)	7.0
6		48.6	48.6				Fentress	LIC (Lily L)	7.0

5.2. Manure Application Setback Distances

Setback Requirements: Class II CAFO

Feature	Setback Criteria	Setback Distance (Feet)
Streams	Applied upgradient, no permanent or insufficient vegetated setback	100
Streams	New operation, near high quality stream	60
Surface waters	Applied upgradient, no permanent or insufficient vegetated setback	100
Open tile line inlet structures	Applied upgradient, no permanent or insufficient vegetated setback	100
Sinkholes	Applied upgradient, no permanent or insufficient vegetated setback	100
Agricultural well heads	Applied upgradient, no permanent or insufficient vegetated setback	100
Other conduits to surface waters	Applied upgradient, no permanent or insufficient vegetated setback	100
Potable well, public or private	Application upgradient of feature	300
Potable well, public or private	Application down-gradient of feature	150

Source: TN DEQ Rule 1200-4-5-.14(17) (d) (http://www.state.tn.us/sos/rules/1200/1200-04/1200-04-05.pdf)

Setback Requirements: NRCS Standard

Feature	Setback Criteria	Setback Distance (Feet)
Well	Application upgradient of feature	300
Well	Application down-gradient of feature	150
Waterbody	Predominant slope 5 to 8% with good vegetation	50
Waterbody	Poor vegetation	100
Public road	All applications	50
Dwelling (other than producer)	All applications	300
Public use area	All applications	300
Property line	Application upgradient of feature	30

Source: Nutrient Management Standard 590
(http://efotg.nrcs.usda.gov/references/public/TN/Nutrient_Management_(590)_Standard.doc)

5.3. Soil Test Data

Field	Test Year	OM (%)	P Test Used	P	K	Mg	Ca	Units	Soil pH	Buffer pH	CEC (meq/ 100g)
1	2010		Mehlich-1	117	172	146	2,281	ppm	5.8	7.7	13.1
2	2010		Mehlich-1	51	55	139	1,822	ppm	6.1		
3	2010		Mehlich-1	45	52	132	1,682	ppm	6.2		
4	2010		Mehlich-1	41	176	103	1,250	ppm	5.9	7.5	7.6
5	2010		Mehlich-1	38	38	100	1,083	ppm	5.7	7.5	6.3
6	2010		Mehlich-1	89	173	140	1,422	ppm	6.0	7.6	8.7

5.4. Manure Nutrient Analysis

Manure Source	Dry Matter (%)	Total N	NH_4-N	Total P_2O_5	Total K_2O	Avail. P_2O_5	Avail. K_2O	Units	Analysis Source and Date
House 1		64.4	13.8	71.8	34.1	71.8	34.1	Lb/Ton	A&L Analytical Laboratories Inc
House 2		64.4	13.8	71.8	34.1	71.8	34.1	Lb/Ton	A&L Analytical Laboratories Inc
House3		64.4	13.8	71.8	34.1	71.8	34.1	Lb/Ton	A&L Analytical Laboratories Inc
Dry Stack		64.4	13.8	71.8	34.1	71.8	34.1	Lb/Ton	A&L Analytical Laboratories Inc

(1) Entered analysis may be the average of several individual analyses.
(2) Tennessee assumes that 100% of manure phosphorus and 100% of manure potassium is crop available. First-year per-acre nitrogen availability for individual manure applications is given in the Planned Nutrient Applications table. For more information about nitrogen availability in Tennessee, see "Manure Application Management," Tables 3 and 4, Tennessee Extension, PB1510, 2/94 (http://wastemgmt.ag.utk.edu/ExtensionProjects/extension_publications.htm).

5.5. Planned Crops and Fertilizer Recommendations

Field	Crop Year	Planned Crop	Yield Goal (per Acre)	N Rec (Lbs/A)	P_2O_5 Rec (Lbs/A)	K_2O Rec (Lbs/A)	N Removed (Lbs/A)	P_2O_5 Removed (Lbs/A)	K_2O Removed (Lbs/A)	Custom Fert. Rec. Source
1	2010	Fescue pasture maint	3.0 Ton	120	0	0	114	54	156	
1	2011	Fescue pasture maint	3.0 Ton	120	0	0	114	54	156	
1	2012	Fescue pasture maint	3.0 Ton	120	0	0	114	54	156	
2	2010	Corn grain	140.0 Bu	150	0	60	105	62	41	
2	2011	Sm gr/ryegrass spring hay	3.0 Ton	165	0	40	84	30	90	
2	2012	Corn grain	140.0 Bu	150	0	60	105	62	41	
3	2010	Sm gr/ryegrass spring hay	Ton	165	0	40	84	30	90	
3	2011	Corn grain	140.0 Bu	150	0	60	105	62	41	
3	2012	Sm gr/ryegrass spring hay	3.0 Ton	165	0	40	84	30	90	
4	2010	Fescue pasture maint	3.0 Ton	120	0	0	114	54	156	
4	2011	Fescue pasture maint	3.0 Ton	120	0	0	114	54	156	
4	2012	Fescue pasture maint	3.0 Ton	120	0	0	114	54	156	
5	2010	Fescue pasture maint	3.0 Ton	120	0	60	114	54	156	
5	2011	Fescue pasture maint	3.0 Ton	120	0	60	114	54	156	
5	2012	Fescue pasture maint	3.0 Ton	120	0	60	114	54	156	
6	2010	Fescue pasture maint	3.0 Ton	120	0	0	114	54	156	
6	2011	Fescue pasture maint	3.0 Ton	120	0	0	114	54	156	
6	2012	Fescue pasture maint	3.0 Ton	120	0	0	114	54	156	

* Unharvested cover crop or first crop in double-crop system.
[a] Custom fertilizer recommendation.

All crop removal and fertilizer recommendations data based UT PSS 185

5.6. Manure Application Planning Calendar – April 2010 through March 2011

Field	Total Acres	Spread. Acres	Predominant Soil Type	Primary 2010 Crop (Prev. Primary Crop)	Apr '10	May '10	Jun '10	Jul '10	Aug '10	Sep '10	Oct '10	Nov '10	Dec '10	Jan '11	Feb '11	Mar '11
1	36.7	36.7	Lily L (LIC 3-8%)	Fescue pasture maint (Fescue pasture maint)												
2	27.2	27.2	Lily L (LIC 3-8%)	Corn grain (Sm gr/ryegrass spring hay)	4.6											
3	16.7	16.7	Lily L (LIC 3-8%)	Sm gr/ryegrass spring hay (Corn grain)												
4	46.7	46.7	Lily L (LIC 3-8%)	Fescue pasture maint (Fescue pasture maint)												
5	10.2	10.2	Lily L (LIC 3-8%)	Fescue pasture maint (Fescue pasture maint)												
6	48.6	48.6	Lily L (LIC 3-8%)	Fescue pasture maint (Fescue pasture maint)												
Total	*186.1*	*186.1*			*8.6*		*8.7*									

No. indicates total loads
"X" indicates other manure apps

Manure Application Planning Calendar – April 2011 through March 2012

Field	Total Acres	Spread. Acres	Predominant Soil Type	Primary 2011 Crop (Prev. Primary Crop)	Apr '11	May '11	Jun '11	Jul '11	Aug '11	Sep '11	Oct '11	Nov '11	Dec '11	Jan '12	Feb '12	Mar '12
1	36.7	36.7	Lily L (LIC 3-8%)	Fescue pasture maint (Fescue pasture maint)												
2	27.2	27.2	Lily L (LIC 3-8%)	Sm gr/ryegrass spring hay (Corn grain)												
3	16.7	16.7	Lily L (LIC 3-8%)	Corn grain (Sm gr/ryegrass spring hay)	2.8											
4	46.7	46.7	Lily L (LIC 3-8%)	Fescue pasture maint (Fescue pasture maint)												
5	10.2	10.2	Lily L (LIC 3-8%)	Fescue pasture maint (Fescue pasture maint)												
6	48.6	48.6	Lily L (LIC 3-8%)	Fescue pasture maint (Fescue pasture maint)												
Total	*186.1*	*186.1*			*26.0*		*5.2*									

No. indicates total loads
"X" indicates other manure apps

Manure Application Planning Calendar – April 2012 through March 2013

Field	Total Acres	Spread. Acres	Predominant Soil Type	Primary 2012 Crop (Prev. Primary Crop)	Apr '12	May '12	Jun '12	Jul '12	Aug '12	Sep '12	Oct '12	Nov '12	Dec '12	Jan '13	Feb '13	Mar '13
1	36.7	36.7	Lily L (LIC 3-8%)	Fescue pasture maint (Fescue pasture maint)												
2	27.2	27.2	Lily L (LIC 3-8%)	Corn grain (Sm gr/ryegrass spring hay)	4.6											
3	16.7	16.7	Lily L (LIC 3-8%)	Sm gr/ryegrass spring hay (Corn grain)												
4	46.7	46.7	Lily L (LIC 3-8%)	Fescue pasture maint (Fescue pasture maint)												
5	10.2	10.2	Lily L (LIC 3-8%)	Fescue pasture maint (Fescue pasture maint)												
6	48.6	48.6	Lily L (LIC 3-8%)	Fescue pasture maint (Fescue pasture maint)												
Total	*186.1*	*186.1*			*26.1*		*5.1*									

No. indicates total loads
"X" indicates other manure apps

5.7. Planned Nutrient Applications (Manure-spreadable Area)

Field	App. Month	Target Crop	Nutrient Source	Application Method	Rate Basis	Rate/Acre	Loads, Speed or Time	Total Amount Applied	Acres Cov.	Avail N (Lbs/A)	Avail P_2O_5 (Lbs/A)	Avail K_2O (Lbs/A)
1	Apr 2010	Fescue pasture maint	46-0-0	Surface broadcast	1-yr N	260 Lbs		9,542 Lbs	36.7	120	0	0
1	Apr 2011	Fescue pasture maint	46-0-0	Surface broadcast	1-yr N	191 Lbs		7,010 Lbs	36.7	88	0	0
1	Apr 2011	Fescue pasture maint	Dry Stack	Truck, Not incorporated	1-yr P	1 Ton	6.2 Lds	37.2 Ton	37.2	32	72	34
1	Apr 2012	Fescue pasture maint	46-0-0	Surface broadcast	1-yr N	176 Lbs		6,459 Lbs	36.7	81	0	0
1	Apr 2012	Fescue pasture maint	Dry Stack	Truck, Not incorporated	1-yr P	1 Ton	6.2 Lds	37.2 Ton	37.2	32	72	34
2	Apr 2010	Corn grain	46-0-0	Surface broadcast	1-yr N	256 Lbs		6,963 Lbs	27.2	118	0	0
2	Apr 2010	Corn grain	Dry Stack	Truck, Not incorporated	1-yr P	1 Ton	4.6 Lds	27.6 Ton	27.6	32	72	34
2	Apr 2011	Sm gr/ryegrass spring hay	46-0-0	Surface broadcast	Custom	150 Lbs		4,080 Lbs	27.2	69	0	0
2	Apr 2011	Sm gr/ryegrass spring hay	Dry Stack	Truck, Not incorporated	1-yr P	1 Ton	4.6 Lds	27.6 Ton	27.6	32	72	34
2	May 2011	Sm gr/ryegrass spring hay	34-0-0	Surface broadcast	Supp. N	167 Lbs		4,542 Lbs	27.2	57	0	0
2	Apr 2012	Corn grain	Dry Stack	Truck, Not incorporated	1-yr P	1 Ton	4.6 Lds	27.6 Ton	27.6	32	72	34
2	Apr 2012	Corn grain	46-0-0	Surface broadcast	Supp. N	236 Lbs		6,419 Lbs	27.2	109	0	0
3	Apr 2010	Sm gr/ryegrass spring hay	46-0-0	Surface broadcast	Custom	150 Lbs		2,505 Lbs	16.7	69	0	0
3	May 2010	Sm gr/ryegrass spring hay	34-0-0	Surface broadcast	Supp. N	282 Lbs		4,709 Lbs	16.7	96	0	0
3	Apr 2011	Corn grain	Dry Stack	Truck, Not incorporated	1-yr P	1 Ton	2.8 Lds	16.8 Ton	16.8	32	72	34
3	Apr 2011	Corn grain	46-0-0	Surface broadcast	Supp. N	256 Lbs		4,275 Lbs	16.7	118	0	0
3	Apr 2012	Sm gr/ryegrass spring hay	Dry Stack	Truck, Not incorporated	1-yr P	1 Ton	2.8 Lds	16.8 Ton	16.8	32	72	34
3	Apr 2012	Sm gr/ryegrass spring hay	46-0-0	Surface broadcast	Custom	150 Lbs		2,505 Lbs	16.7	69	0	0
3	May 2012	Sm gr/ryegrass spring hay	34-0-0	Surface broadcast	Supp. N	167 Lbs		2,789 Lbs	16.7	57	0	0
4	Apr 2010	Fescue pasture maint	46-0-0	Surface broadcast	1-yr N	191 Lbs		8,920 Lbs	46.7	88	0	0
4	Apr 2010	Fescue pasture maint	Dry Stack	Truck, Not incorporated	1-yr P	1 Ton	2.3 Lds	13.8 Ton	13.8	32	72	34
4	Jun 2010	Fescue pasture maint	Dry Stack	Truck, Not incorporated	1-yr P	1 Ton	5.5 Lds	33 Ton	33.0	32	72	34
4	Apr 2011	Fescue pasture maint	46-0-0	Surface broadcast	1-yr N	176 Lbs		8,219 Lbs	46.7	81	0	0
4	Apr 2011	Fescue pasture maint	Dry Stack	Truck, Not incorporated	1-yr P	1 Ton	7.8 Lds	46.8 Ton	46.8	32	72	34
4	Apr 2012	Fescue pasture maint	46-0-0	Surface broadcast	1-yr N	171 Lbs		7,986 Lbs	46.7	79	0	0
4	Apr 2012	Fescue pasture maint	Dry Stack	Truck, Not incorporated	1-yr P	1 Ton	7.8 Lds	46.8 Ton	46.8	32	72	34
5	Apr 2010	Fescue pasture maint	Dry Stack	Truck, Not incorporated	1-yr P	1 Ton	1.7 Lds	10.2 Ton	10.2	32	72	34
5	Apr 2010	Fescue pasture maint	46-0-0	Surface broadcast	Supp. N	191 Lbs		1,948 Lbs	10.2	88	0	0
5	Apr 2011	Fescue pasture maint	46-0-0	Surface broadcast	1-yr N	176 Lbs		1,795 Lbs	10.2	81	0	0

Field	App. Month	Target Crop	Nutrient Source	Application Method	Rate Basis	Rate/Acre	Loads, Speed or Time	Total Amount Applied	Acres Cov.	Avail N (Lbs/A)	Avail P_2O_5 (Lbs/A)	Avail K_2O (Lbs/A)
5	Apr 2011	Fescue pasture maint	Dry Stack	Truck, Not incorporated	1-yr P	1 Ton	1.7 Lds	10.2 Ton	10.2	32	72	34
5	Apr 2012	Fescue pasture maint	Dry Stack	Truck, Not incorporated	1-yr P	1 Ton	1.7 Lds	10.2 Ton	10.2	32	72	34
5	Apr 2012	Fescue pasture maint	46-0-0	Surface broadcast	Supp. N	171 Lbs		1,744 Lbs	10.2	79	0	0
6	Apr 2010	Fescue pasture maint	46-0-0	Surface broadcast	1-yr N	232 Lbs		11,275 Lbs	48.6	107	0	0
6	Jun 2010	Fescue pasture maint	Dry Stack	Truck, Not incorporated	1-yr P	1 Ton	3.2 Lds	19.2 Ton	19.2	32	72	34
6	Apr 2011	Fescue pasture maint	46-0-0	Surface broadcast	1-yr N	184 Lbs		8,942 Lbs	48.6	85	0	0
6	Apr 2011	Fescue pasture maint	Dry Stack	Truck, Not incorporated	1-yr P	1 Ton	2.9 Lds	17.4 Ton	17.4	32	72	34
6	Jun 2011	Fescue pasture maint	Dry Stack	Truck, Not incorporated	1-yr P	1 Ton	5.2 Lds	31.2 Ton	31.2	32	72	34
6	Apr 2012	Fescue pasture maint	46-0-0	Surface broadcast	1-yr N	173 Lbs		8,408 Lbs	48.6	80	0	0
6	Apr 2012	Fescue pasture maint	Dry Stack	Truck, Not incorporated	1-yr P	1 Ton	3 Lds	18 Ton	18.0	32	72	34
6	Jun 2012	Fescue pasture maint	Dry Stack	Truck, Not incorporated	1-yr P	1 Ton	5.1 Lds	30.6 Ton	30.6	32	72	34

5.8. Field Nutrient Balance (Manure-spreadable Area)

Year	Field	Size	Crop	Yield Goal	Fertilizer Recs[1]			Nutrients Applied[2]			Balance After Recs[3]			Balance After Removal[4]	
		Acres		/Acre	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	P_2O_5 Lb/A	K_2O Lb/A
2010	1	36.7	Fescue pasture maint	3	120	0	0	120	0	0	0	0	0	-54	-156
2011	1	36.7	Fescue pasture maint	3	120	0	0	120	73	34	0	73	34	19	-122
2012	1	36.7	Fescue pasture maint	3	120	0	0	113	73	34	0†	146	68	38	-122
Total	**1**				**360**	**0**	**0**	**353**	**146**	**68**					
2010	2	27.2	Corn grain	140	150	0	60	150	73	34	0	73	-26	11	-7
2011	2	27.2	Sm gr/ryegrass spring hay	3	165	0	40	158	73	34	0†	146	-6	54	-56
2012	2	27.2	Corn grain	140	150	0	60	141	73	34	0†	219	-26	65	-7
Total	**2**				**465**	**0**	**160**	**449**	**219**	**102**					
2010	3	16.7	Sm gr/ryegrass spring hay	3	165	0	40	165	0	0	0	0	-40	-30	-90
2011	3	16.7	Corn grain	140	150	0	60	150	72	34	0	72	-26	10	-7
2012	3	16.7	Sm gr/ryegrass spring hay	3	165	0	40	158	72	34	0†	144	-6	52	-56
Total	**3**				**480**	**0**	**140**	**473**	**144**	**68**					

Year	Field	Size	Crop	Yield Goal	Fertilizer Recs[1]			Nutrients Applied[2]			Balance After Recs[3]			Balance After Removal[4]	
		Acres		/Acre	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	P_2O_5 Lb/A	K_2O Lb/A
2010	4	46.7	Fescue pasture maint	3	120	0	0	120	72	34	0	72	34	18	-122
2011	4	46.7	Fescue pasture maint	3	120	0	0	113	72	34	0†	144	68	36	-122
2012	4	46.7	Fescue pasture maint	3	120	0	0	111	72	34	0†	216	102	54	-122
Total	**4**				**360**	**0**	**0**	**344**	**216**	**102**					
2010	5	10.2	Fescue pasture maint	3	120	0	60	120	72	34	0	72	-26	18	-122
2011	5	10.2	Fescue pasture maint	3	120	0	60	113	72	34	0†	144	-26	36	-122
2012	5	10.2	Fescue pasture maint	3	120	0	60	111	72	34	0†	216	-26	54	-122
Total	**5**				**360**	**0**	**180**	**344**	**216**	**102**					
2010	6	48.6	Fescue pasture maint	3	120	0	0	120	28	13	0	28	13	-26	-143
2011	6	48.6	Fescue pasture maint	3	120	0	0	117	72	34	0†	100	47	18	-122
2012	6	48.6	Fescue pasture maint	3	120	0	0	112	72	34	0†	172	81	36	-122
Total	**6**				**360**	**0**	**0**	**349**	**172**	**81**					

[1] Fertilizer Recs are the crop fertilizer recommendations. The N rec accounts for any N credit from previous legume crop.

[2] Nutrients Applied are the nutrients expected to be available to the crop from that year's manure applications plus nutrients from that year's commercial fertilizer applications and nitrates from irrigation water. With a double-crop year, the total nutrients applied for both crops and the year's balances are listed on the second crop's line.

[3] For N, Nutrients Applied minus Fertilizer Recs for indicated crop year. Also includes amount of residual N expected to become available that year from prior years' manure applications. For P_2O_5 and K_2O, Nutrients Applied minus Fertilizer Recs *through* the indicated crop year, with positive balances carried forward to subsequent years. Negative values indicate a potential need to apply additional nutrients.

[4] Nutrients Applied minus amount removed by harvested portion of crop through the indicated year. Positive balances are carried forward to subsequent years.

[¤] Indicates a custom fertilizer recommendation in the Fertilizer Recs column.

[a] Indicates in the Balance After Recs N column that the legume crop is assumed to utilize some or all of the supplied N.

† Indicates in the Balance After Recs N column that the value includes residual N expected to become available that year from prior years' manure applications.

5.9. Manure Inventory Annual Summary

Manure Source	Plan Period	On Hand at Start of Period	Total Generated	Total Imported	Total Trans-ferred In	Total Applied	Total Exported	Total Trans-ferred Out	On Hand at End of Period	Units
House 1	Apr '10 - Mar '11	50	90	0	0	0	0	72	68	Ton
House 2	Apr '10 - Mar '11	50	281	0	0	0	0	120	211	Ton
House3	Apr '10 - Mar '11	50	281	0	0	0	0	120	211	Ton
Dry Stack	Apr '10 - Mar '11	0	0	0	312	104	104	0	104	Ton
All Sources	**Apr '10 - Mar '11**	**150**	**652**	**0**	**312**	**104**	**104**	**312**	**594**	**Ton**
House 1	Apr '11 - Mar '12	68	90	0	0	0	0	136	23	Ton
House 2	Apr '11 - Mar '12	211	281	0	0	0	0	335	157	Ton
House3	Apr '11 - Mar '12	211	281	0	0	0	0	335	157	Ton
Dry Stack	Apr '11 - Mar '12	104	0	0	806	187	618	0	105	Ton
All Sources	**Apr '11 - Mar '12**	**594**	**652**	**0**	**806**	**187**	**618**	**806**	**441**	**Ton**
House 1	Apr '12 - Mar '13	23	90	0	0	0	0	72	41	Ton
House 2	Apr '12 - Mar '13	157	281	0	0	0	0	120	318	Ton
House3	Apr '12 - Mar '13	157	281	0	0	0	0	120	318	Ton
Dry Stack	Apr '12 - Mar '13	105	0	0	312	187	126	0	104	Ton
All Sources	**Apr '12 - Mar '13**	**441**	**652**	**0**	**312**	**187**	**126**	**312**	**781**	**Ton**

5.10. Fertilizer Material Annual Summary

Product Analysis	Plan Period	Product Needed Apr - Aug	Product Needed Sep - Dec	Product Needed Jan - Mar	Total Product Needed	Units
46-0-0	Apr '10 - Mar '11	41,153	0	0	41,153	Lbs
34-0-0	Apr '10 - Mar '11	4,709	0	0	4,709	Lbs
46-0-0	Apr '11 - Mar '12	34,321	0	0	34,321	Lbs
34-0-0	Apr '11 - Mar '12	4,542	0	0	4,542	Lbs
46-0-0	Apr '12 - Mar '13	33,521	0	0	33,521	Lbs
34-0-0	Apr '12 - Mar '13	2,789	0	0	2,789	Lbs

5.11. Whole-farm Nutrient Balance (Manure-spreadable Area)

	N (Lbs)	P_2O_5 (Lbs)	K_2O (Lbs)
Total Manure Nutrients on Hand at Start of Plan[1]	9,660	10,770	5,115
Total Manure Nutrients Collected[2]	125,966	140,441	66,700
Total Manure Nutrients Imported[3]	0	0	0
Total Manure Nutrients Exported[4]	54,566	60,836	28,893
Total Manure Nutrients on Hand at End of Plan[5]	50,264	56,040	26,615
Total Manure Nutrients Applied[6]	30,605	34,430	16,259
Available Manure Nutrients Applied[7]	17,547	34,430	16,259
Commercial Fertilizer Nutrients Applied[8]	54,369	0	0
Available Nutrients Applied[9]	71,916	34,430	16,259
Nutrient Utilization Potential[10]	71,856	29,263	76,270
Nutrient Balance of Spreadable Acres[11*]	60	5,167	-60,011
Average Nutrient Balance per Spreadable Acre per Year[12*]	0	9	-107

1. Values indicate total manure nutrients present in storage(s) at the beginning of the plan.
2. Values indicate total manure nutrients collected on the farm.
3. Values indicate total manure nutrients imported onto the farm.
4. Values indicate total manure nutrients exported from the farm to an external operation.
5. Values indicate total manure nutrients present in storage(s) at the end of plan.
6. Values indicate total nutrients present in land-applied manure. Losses due to rate, timing and method of application are not included in these values.
7. Values indicate available manure nutrients applied on the farm based on rate, time and method of application. These values are based on the total manure nutrients applied (row 6) after accounting for state-specific nutrient losses due to rate, time and method of application.
8. Values indicate nutrients applied as commercial fertilizers and nitrates contained in irrigation water.
9. Values are the sum of available manure nutrients applied (row 7) and commercial fertilizer nutrients applied (row 8).
10. Values indicate nutrient utilization potential of crops grown. For N the value generally is based on crop N recommendation for non-legume crops and crop N uptake or other state-imposed limit for N application rates for legumes. P_2O_5 and K_2O values generally are based on fertilizer recommendations or crop removal (whichever is greatest).
11. Values indicate available nutrients applied (row 9) minus crop nutrient utilization potential (row 10). Negative values indicate additional nutrient utilization potential and positive values indicate over-application.
12. Values indicate average per acre nutrient balance. Values are calculated by dividing nutrient balance of spreadable acres (row 11) by the number of spreadable acres in plan and by the length of the plan in years. Negative values indicate additional average per acre nutrient utilization potential and positive values indicate average per acre over-application.

* Non-trivial, positive values for N indicate that the plan was not properly developed. Negative values for N indicate additional nutrient utilization potential which may or may not be intentional. For example, plans that include legume crops often will not utilize the full N utilization potential for legume crops if manure can be applied to non-legume crops that require N for optimum yield. Positive values for P_2O_5 and/or K_2O do not necessarily indicate that the plan was not developed properly. For example, producers may be allowed to apply N-based application rates of manure to fields with low soil test P values or fields with a low potential P-loss risk based on the risk assessment tool used by the state. Negative values for P_2O_5 and K_2O indicate that planned applications to some fields are less than crop removal rates.

Section 6. Record Keeping

This section includes a list of key records that the operator should keep in order to document and verify implementation of the procedures in this CNMP. Records should be kept for a minimum of 5 years, or for the length of the contract, rotation or permit, whichever is longer, for each field where manure is applied.

These general records include but are not limited to:

- Soil test results
- Weather and soil conditions 24 hours prior to, during, and 24 hours after application of manure, chemicals and pesticides
- Documentation (can be verbal) of arrangements for land injection on land not owned by the grower
- Type, quantities, and sources of all nutrients generated and collected
- Type, quantities, and sources of all nutrients applied to each field
- Dates of manure applications
- Analysis of manure prior to application and test method used
- Analysis of the manure transferred, where applicable
- Dates manure was transferred, where applicable and to whom
- Amount of manure transferred, where applicable
- Inspection reports
- Preside Dress Soil Nitrate Testing (PSNT), where applicable
- Operation and Maintenance records of conservation practices and equipment
- Restricted pesticides used to meet label requirements
- Equipment Calibration records
- Crops planted, tillage methods, and dates planted
- Crop harvest dates and yields
- Conservation practices and management activities and implemented
- Adjustments to the nutrient management plan based on records and changes in farming operations as appropriate.
- Changes to the CNMP
- Weekly check of volume left in pit
- Annual visual inspection of retention structure (the pits), animal holding areas, if applicable and land application areas.
- Records of mortalities and how managed

Section 7. Actual Test Results

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SOIL TEST REPORT

DENNIS HEDGECOTH
1510 LLOYD LOOP

DEER LODGE TN 37726

Deborah K Jones
Manager
Soil, Plant and Pest Center
5201 Marchant Drive
Nashville TN 37211-5112
(615) 832-5850
soilplantpestcenter@utk.edu

Date Tested: 4/26/2010

County: Fentress **Lab Number:** 390488

Mehlich 1 SOIL TEST RESULTS and RATINGS*

Sample ID 1 **(Pounds Per Acre)**

Water pH	Buffer Value	P Phosphorus	K Potassium	Ca Calcium	Mg Magnesium	Zn Zinc	Cu Copper	Fe Iron	Mn Manganese	B Boron	Na Sodium	S Sulfur	Nitrates (ppm)
5.8	7.7	117 H	172 M	2260 S	146 S								

Organic Matter %

Soluble Salts PPM**

RECOMMENDATIONS

1 **Fertilizer/Lime Application Rate and Timing**

Small Grain and/or Ryegrass

N / P2O5 / K2O

Nitrogen/Phosphate/Potash 60-180 / 0 / 0 pounds per acre

Limestone: 2 tons per acre

For fall grazing apply 60 pounds of nitrogen at time of seeding. For fall and spring grazing apply an additional 45 pounds of nitrogen about March 1 and 45 pounds April 15. For fall grazing and spring hay or silage, apply 60 pounds of nitrogen at seeding and 60 pounds nitrogen March 1-15. For spring hay or silage only, apply 45 pounds nitrogen at seeding and 60 pounds March 15. Where ryegrass is in the mixture and an additional cutting is expected in the spring, apply an additional 60 pounds of nitrogen per acre immediately after the first cutting. For spring grazing only apply 30 pounds nitrogen per acre at seeding and 45 pounds March 1 and 45 pounds April 15.

County: Fentress **Lab Number:** 390489

Mehlich 1 SOIL TEST RESULTS and RATINGS*

Sample ID 2 **(Pounds Per Acre)**

Water pH	Buffer Value	P Phosphorus	K Potassium	Ca Calcium	Mg Magnesium	Zn Zinc	Cu Copper	Fe Iron	Mn Manganese	B Boron	Na Sodium	S Sulfur	Nitrates (ppm)
6.1		51 H	55 L	1822 S	139 S								

Organic Matter %

Soluble Salts PPM**

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*Ratings: Indicates relative availability of nutrients to plants. (See back of this form for detailed explanation.)

**PPM = Parts per Million

If you have questions about these recommendations, contact your County Extension office.

Visit our web site at http://soilplantandpest.utk.edu for additional information.

RECOMMENDATIONS

2 **Fertilizer/Lime Application Rate and Timing**

Cool Season Grass Pasture b. Maintenance

N / P_2O_5 / K_2O

Nitrogen/Phosphate/Potash: 60-120 / 0 / 60 pounds per acre

Limestone Lime is not recommended at this time

Apply recommended amounts of phosphate and potash in one application anytime during the year. Apply 60 pounds of nitrogen per acre August 15 to September 15 and from March 1 to March 30. If additional growth is only needed during one season, apply nitrogen for that season only. If fescue is stockpiled in the fall, apply 60 pounds of N per acre August 15 to September 15.

County: Fentress **Lab Number:** 390490

Mehlich 1 SOIL TEST RESULTS and RATINGS*

Sample ID 3 **(Pounds Per Acre)**

Water pH	Buffer Value	P Phosphorus		K Potassium		Ca Calcium		Mg Magnesium		Zn Zinc	Cu Copper	Fe Iron	Mn Manganese	B Boron	Na Sodium	S Sulfur	Nitrates (ppm)
6.2		45	H	52	L	1682	S	132	S								

Organic Matter %

Soluble Salts PPM**

RECOMMENDATIONS

3 **Fertilizer/Lime Application Rate and Timing**

Cool Season Grass Pasture b. Maintenance

N / P_2O_5 / K_2O

Nitrogen/Phosphate/Potash 60-120 / 0 / 60 pounds per acre

Limestone Lime is not recommended at this time

Apply recommended amounts of phosphate and potash in one application anytime during the year. Apply 60 pounds of nitrogen per acre August 15 to September 15 and from March 1 to March 30. If additional growth is only needed during one season, apply nitrogen for that season only. If fescue is stockpiled in the fall, apply 60 pounds of N per acre August 15 to September 15.

County: Fentress **Lab Number:** 390491

Mehlich 1 SOIL TEST RESULTS and RATINGS*

Sample ID 4 **(Pounds Per Acre)**

Water pH	Buffer Value	P Phosphorus		K Potassium		Ca Calcium		Mg Magnesium		Zn Zinc	Cu Copper	Fe Iron	Mn Manganese	B Boron	Na Sodium	S Sulfur	Nitrates (ppm)
5.9	7.5	41	H	176	H	1250	S	103	S								

Organic Matter %

Soluble Salts PPM**

RECOMMENDATIONS

4 **Fertilizer/Lime Application Rate and Timing**

Cool Season Grass Pasture b. Maintenance

N / P_2O_5 / K_2O

Nitrogen/Phosphate/Potash: 60-120 / 0 / 0 pounds per acre

Limestone 2 tons per acre

HEDGECOTH Page 2

*Ratings: Indicates relative availability of nutrients to plants. (See back of this form for detailed explanation.)

**PPM = Parts per Million

If you have questions about these recommendations, contact your County Extension office.

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Apply recommended amounts of phosphate and potash in one application anytime during the year. Apply 60 pounds of nitrogen per acre August 15 to September 15 and from March 1 to March 30. If additional growth is only needed during one season, apply nitrogen for that season only. If fescue is stockpiled in the fall, apply 50 pounds of N per acre August 15 to September 15.

County: Fentress **Lab Number:** 390492

Mehlich 1 SOIL TEST RESULTS and RATINGS*

Sample ID WC **(Pounds Per Acre)**

Water pH	Buffer Value	P Phosphorus		K Potassium		Ca Calcium		Mg Magnesium		Zn Zinc	Cu Copper	Fe Iron	Mn Manganese	B Boron	Na Sodium	S Sulfur	Nitrates (ppm)
5.7	7.5	38	H	38	L	1093	S	100	S								

Organic Matter %; Soluble Salts PPM**

RECOMMENDATIONS

WC **Fertilizer/Lime Application Rate and Timing**

Corn (125-150 BU/A)

	N / P_2O_5 / K_2O
Nitrogen/Phosphate/Potash	150 / 0 / 120 pounds per acre

Limestone 2 tons per acre

Banding a portion or all of the phosphate and potash two inches to the side and below the seed level may result in increased yields on soils testing low in either or both phosphorous and potassium. For soils testing medium or higher, either banding or broadcasting are effective methods of application. If fertilizer is placed directly with the seed, do not apply more than 30 pounds per acre of nitrogen or nitrogen plus potash to prevent seedling injury and loss of stand.

Split applications of nitrogen may be beneficial when nitrogen rates are greater than 120 pounds per acre. See Corn Nitrogen Rate Calculator at www.utcrops.com.

If nitrogen sources containing urea are not incorporated, some loss of nitrogen may occur if applied to moist soils followed by three or more days of rapidly drying conditions without rainfall.

Reduce N rate by 60 to 80 pounds per acre following a winter cover crop of crimson clover or hairy vetch that has reached early bloom stage.

If zinc was tested and is below 2 pounds per acre, apply five pounds of zinc (approximately 15 pounds zinc sulfate) per acre just prior to planting.

County: Fentress **Lab Number:** 390493

Mehlich 1 SOIL TEST RESULTS and RATINGS*

Sample ID B6 **(Pounds Per Acre)**

Water pH	Buffer Value	P Phosphorus		K Potassium		Ca Calcium		Mg Magnesium		Zn Zinc	Cu Copper	Fe Iron	Mn Manganese	B Boron	Na Sodium	S Sulfur	Nitrates (ppm)
6.0	7.6	89	H	173	H	1422	S	140	S								

Organic Matter %; Soluble Salts PPM**

RECOMMENDATIONS

B6 **Fertilizer/Lime Application Rate and Timing**

Common Bermudagrass Pasture- Maintenance

	N / P_2O_5 / K_2O
Nitrogen/Phosphate/Potash	50-180 / 0 / 0 pounds per acre

HEDGECOTH - Page 3

*Ratings: Indicates relative availability of nutrients to plants. (See back of this form for detailed explanation.)

**PPM = Parts per Million

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Visit our web site at http://soilplantandpest.utk.edu for additional information.

Limestone 2 tons per acre

The rate of nitrogen topdressing depends on the need for forage. Apply one-half of the nitrogen May 1 and one-half July 1. Broadcast all lime and fertilizer on the soil surface. If more than 4 tons of lime per acre are required, apply only 4 tons of lime per acre and re-test after one year.

If urea is the nitrogen source, some loss of nitrogen may occur if applied to moist soils followed by three or more days of rapidly drying conditions without rainfall.

Apply recommended amounts of phosphate and potash in one application any time during the year.

*Ratings: Indicates relative availability of nutrients to plants. (See back of this form for detailed explanation.)

**PPM = Parts per Million

If you have questions about these recommendations, contact your County Extension office.

Visit our web site at http://soilplantandpest.utk.edu for additional information.

A&L Analytical Laboratories, Inc.

2790 Whitten Rd. Memphis, TN 38133 (901) 213-2400 Fax (901) 213-2440
www.allabs.com

LAND APPLICATION ANALYSIS

Client:
Fentress County Soil Conservation

452 E. Mark Twain Ave
P.O. Box 1717
Jamestown, TN 38556

Order:
Analytical Testing

PO:

Report No: 10-112-0204
Cust No: 20375
Date Printed: 05/04/2010
Date Rec'd: 4/22/2010
Page: 1 of 1

Lab Number: 62842 **Sample Id:** Chicken Litter

Test	Analysis		Pounds Per Ton	
	As Received	Dry Basis	As Received	Dry Basis
Nitrogen, N %	3.22	3.72	64.4	74.5
Ammoniacal-N %	0.690	0.797	13.8	16.0
Phosphorus, P %	1.56	1.80	71.8 P_2O_5	83.0
Potassium, K %	1.42	1.64	34.1 K_2O	39.4
Sulfur, S				
Magnesium, Mg				
Calcium, Ca				
Sodium, Na				
Iron, Fe				
Aluminum, Al Manganese, Mn				
Copper, Cu				
Zinc, Zn				
Boron, B				

Test	Result
Moisture %	13.5
Solid %	86.5

Additional Information	Result
Type	Dry Basis

Additional Tests	Result
Ammoniacal-N, %	0.690

Comments:

RMMA Recommended Methods of Manure Analysis. Peters et al. 2002. In Press

SW USEPA, SW-846. Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods. 3rd Ed. Current Revision

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Section 8. References

8.1. Publications

Crop Fertilizer Recommendations

"Lime and Fertilizer Recommendations for the Various Crops of Tennessee," BEES Info #100, Aug 2008
http://soilplantandpest.utk.edu/publications/soilfertilizerpubs.htm

"Lime and Fertilizer Recommendations for the Various Crops of Tennessee," BEES Info #100, Feb 2009
http://soilplantandpest.utk.edu/publications/soilfertilizerpubs.htm

Manure Application Setback Features/Distances

Nutrient Management Standard 590
http://efotg.nrcs.usda.gov/references/public/TN/Nutrient_Management_(590)_Standard.doc

TN DEQ Rule 1200-4-5-.14(17) (d)
http://www.state.tn.us/sos/rules/1200/1200-04/1200-04-05.pdf

Manure Nutrient Availability

"Manure Application Management," Tables 3 and 4, Tennessee Extension, PB1510, 2/94
http://wastemgmt.ag.utk.edu/ExtensionProjects/extension_publications.htm

Phosphorus Assessment

"Tennessee Phosphorus Index," Tennessee NRCS, Nov. 2001

Practice Standards

Tennessee NRCS Nutrient Management Standard (590), Jan. 2003
http://efotg.nrcs.usda.gov/references/public/TN/Nutrient_Management_(590)_Standard.doc

8.2. Software and Data Sources

MMP Version	MMP 0.2.9.0
MMP Plan File	Hedgecoth.mmp 5/31/2010 9:55:40 PM
MMP Initialization File for Tennessee	6/4/2009
MMP Soils File for Tennessee	11/17/2009
Phosphorus Assessment Tool	2009.02.20
NRCS Conservation Plan(s)	n/a
RUSLE2 Library	Version: 1.32.3.0 Build: Dec 17 2007 Science: 20061020
RUSLE2 Database	Hedgecoth_RUSLE2mosesdb.gdb

Section 9. Operation and Maintenance

General
Operation and maintenance of structural, non-structural, and land treatment measures requires effort and expenditures throughout the life of the practice(s) to maintain safe conditions and assure proper functioning. Operation includes the administration, management, and performance of non-maintenance actions needed to keep a completed practice safe and functioning as planned. Maintenance includes work to prevent deterioration of practices, repairing damage, or replacement of the practice(s) if one or more components fail. Listed below is the operation and maintenance plan for the structural, non-structural, and land treatment measures for this operation.

Concrete in the buildings should be checked for signs of cracking. If cracks are discovered they must be repaired immediately. Hairline cracks are expected and should pose no problem.

Waste Storage Facility –Roofed Storage Facilities
Trusses/roof supports shall be examined during/after snowfall and high wind events. Excessive snow loads may require removal. Damage from high winds may cause structural damage to the truss/roof supports. Roof materials shall be replaced as wear/leakage occurs. Metal roofing may require periodic painting. Gutters and Downspouts shall be maintained.

Heavy Use Area Protection
This practice is applied every year to protect area(s) from soil erosion by maintaining vegetative cover around houses, barns, roads, etc. These areas will have pests controlled as needed and will be fertilized at maintenance levels for optimum growth.

Limit access to the area during poor soil / weather situations to protect the cover.
Inspect the heavy use area after significant storms and repair damaged areas as soon as practical.

Manure will be removed from the heavy use area when the depth reaches 6-8 inches.

Fence
Fences and gates will be inspected often and repaired promptly. Electric twine can be used if it becomes necessary to subdivide the herd lots and to prevent the development of denuded areas.

Pond
Earthen slopes shall be checked for rills and gullies. Seeding shall be as necessary to maintain a grass cover. Weeds shall be controlled. The top of dam and outside slopes shall be mowed annually to discourage weed growth, control woody vegetation, and allow closer examination of the earth embankment. Quickly remove woody vegetation that begins to grow on the embankment to prevent root establishment.

Earthen slopes shall be checked for soft or damp/wet areas that may be a sign of potential leakage. Burrowing animals in the slopes shall be controlled. Animals shall be immediately removed and the burrow holes filled.

Exclude animals and humans at all times.

Safety equipment (life buoys, ropes) and warning signs shall be maintained and checked periodically for wear.

Watering Facility
The water troughs in the pastures and loafing areas must be checked often for leaks and the proper functioning of automatic water level control devices. Replace or repair defective automatic water level controls immediately. Water troughs not in use should be drained to prevent the formation of algae.

The area around the water troughs will need to be shaped and filled to prevent rutting, ponding, organic build-up, and erosion around the concrete.

Pasture Management
The pastures for the dry cows shall be managed for optimal growth of vegetation. The pastures are divided into sub-pastures as needed. The pastures will be managed in such a manner that will result in a well maintained stand of grass. Grazing of pastures should follow the recommendations provided by NRCS.

The actual time that cows are on pastures shall be adjusted based on production of forage and amount of nutrients applied. It is suggested that a ledger be kept to record the number of cows and time kept on individual pasture areas.

The pastures must be managed to prevent denuded areas from developing. This will be accomplished using gates and fencing to confine cows to specific areas. Portable feeders, portable shades, electric fence and portable water troughs are ways to help distribute the cows, and ultimately, evenly spreading the nutrients over the pastures. Electric twine can be used to subdivide the pastures and restrict grazing to the desired areas. This will help prevent the formation of denuded areas. A daily use record should be maintained in order to ensure uniform distribution of the nutrients. If a denuded area starts to develop, immediate corrective measures must be taken. Corrective actions may include, but not be limited to, temporarily fencing off the area, reseeding the area, and relocating the cause of the denuded area if applicable. Any buildup of manure (i.e., around gates and feeders) should be removed, analyzed for N, P and K then spread according to the nutrient management plan. Supplemental fertilizer may be needed to maintain good vegetation conditions in the pastures. A soil test will determine which nutrients are lacking and the amount to apply. Only apply the amount of nutrients recommended by the soil test and in accordance with the nutrient management plan.

Animal Trails and Walkways
The walkways should be cleaned frequently to prevent a buildup of manure and reshaped as necessary to facilitate the removal of surface runoff. Fences and gates shall be used to control the access and movement of cattle using the animal trails and walkways and to prevent the creation of ruts in the trails and walkways. Cows will be moved non-stop between the barn and the pastures and not allowed to loaf or rest on the walkway.

The solids removed from any trails or walkways shall be analyzed for N, P_2O_5, and K_2O as they are removed and before they are spread.

Manure Spreader
Collecting a sample from the manure spreader is one of the preferred methods of collecting a solid manure sample because it represents what is being applied to the field. In addition, by the time manures have been scraped, collected, and loaded into a manure spreader, reasonable mixing has been performed. However, you should still collect at least 5 sub-samples following the collection procedures for the solids separator.

Nutrient Management
When applying waste or commercial fertilizer, calibrate application equipment to ensure that applied rates at recommended rates. It is important to avoid unnecessary exposure to chemical fertilizers and organic wastes. Protective clothing, respirator, gloves and footwear shall be worn when appropriate. When cleaning equipment after nutrient application, residual fertilizers or wastes shall be removed and saved in an appropriate manner.

- Keep records to document implementation activities. (Refer to PQC for guidance for the kind of records that should be kept).
- Calibrate manure application equipment according to procedures outlined in this section.
- Dispose/recycle nutrient containers according to state and local guidelines or regulations.
- Apply nutrients according to the procedures outlined in Section 6.
- Delay application of manure if precipitation capable of producing runoff is anticipated within 24 hours of the application event.
- Monitor soil test phosphorus levels and adjust nutrient application rates accordingly.
- Do not apply manure and wastewater on saturated, frozen and/or frequently flooded soils.
- Adhere to no-application setbacks as outlined on the conservation plan maps in Section 4.

Pesticide Management
The owner/operator is responsible for the proper application and storage of pesticides including calibration and maintenance of all equipment used in application of pesticides. No pesticides are stored on-site. Chemical fertilizers are purchased on an as needed basis. In addition, moveable mixing station is used and long time use of a specific mixing site is avoided therefore minimizing ground contamination. The following should be addressed, according to pesticide labels, in order to minimize negative impacts to the environment:

- Be trained and licensed to apply restricted pesticides.
- Dispose of leftover materials and containers according to label requirements.
- Read and follow all label directions and Material Safety Data Sheets that come with the pesticides.
- Avoid mixing pesticides and loading or rinsing sprayers next to wells, streams, sinkholes, drainage ditches, etc. Install anti-siphon devices on all hoses used to fill spray tanks.
- Avoid exposure to pesticides. Wear appropriate clothing, gloves, respirator, and footwear as specified on the product label. Wash affected area as soon as possible after possible exposure and prior to dinning or smoking.
- Check product label for reentry time. Follow restricted entry intervals.
- Triple –rinse empty containers is considered as a part of an integrated pest management system. Provide areas for emergency washing for those who might accidentally come in contact with chemicals.
- Use field scouting to determine when treatment threshold has been reached. Treatment thresholds for specific pests and crops are often available from the local Cooperative Extension Service office.
- Alternate pesticides of dissimilar mode of action or chemistry to reduce-target species resistance.
- Select methods of application that will result in the least potential for runoff and leaching.

Waste Utilization
Follow Nutrient Management Plan included in this document for the proper manure application rates, timing, and methods of application to provide nutrients to support crop production and to minimize the transport of nutrients to ground and surface water.

Commercial Fertilizer Application Equipment Calibration
The nitrogen applicator and the commercial broadcast spreaders will be set per the manufacturer's recommendations, then filled with a known amount and checked over a known acreage. Adjustments will be made to achieve the planned rates.

Animal Mortality Management
Inspect the facility to note any maintenance needs or indicators of operation problems.

Composting
The composted material will be utilized per the enclosed "Nutrient Management Plan."

Filter Strip
Establish a strip of perennial vegetation for trapping sediment and other pollutants from runoff or waste water.

Harvest the filter strip vegetation annually to encourage dense growth, maintain an upright growth habit and remove nutrients and other contaminants that are contained in the plant tissue.

Control undesired weed species, especially state-listed noxious weeds.

Inspect the filter strip after storm events and repair any gullies that have formed, remove unevenly deposited sediment accumulation that will disrupt sheet flow, and reseed disturbed areas.

Periodically re-grade the filter strip area when sediment deposition at the filter strip-field interface jeopardizes its function. Reestablish the filter strip vegetation in these re-graded areas, if needed.

Manure Spreader Calibration

There are several methods that can be used to calibrate the application rate of a manure spreader. It is desirable to repeat the calibration procedure 2 to 3 times and average the results to ensure a more accurate calibration. Calibration should take place annually or when manure is being applied from different sources or consistency.

Before calibrating a manure spreader, the spreader settings should be adjusted so that the spread is uniform. Most spreaders tend to deposit more manure near the spreader than at the edge of the spread pattern. Overlapping can make the overall application more uniform. Calibrating of application rates when overlapping, requires measuring the width of two spreads and dividing by two to get the effective spread width.

To calibrate the manure spreader use either of the following procedures.

Spreader Calibration - Method 1

Equipment: plastic sheet 6 x 6ft or 10 x 10ft, scale, bucket

1. Weigh sheet with bucket on the scale

2. Lay sheet in field in the path of manure spreader positioning it so the tractor will be at spreading speed before it reaches the sheet.

3. After spreading weigh sheet and manure in the bucket. Subtract weight of sheet plus bucket

4. Tons manure/acre = lb manure x 2 1.8, sheet size, sq ft

Spreader Calibration - Method 2

Equipment: yard stick, rope

1. Determine manure spreader capacity

2. Tie rope around tractor tire to determine distance traveled in one revolution

3. Spread manure load, counting wheel revolutions to determine the distance traveled

4. Measure width spreader is covering with manure, multiply by distance traveled